Air Pollution Control District
Jefferson County, Ky
7 February 2001

TITLE V PERMIT SUMMARY

Company: Alcan Aluminum Corp.

Plant Location: 1430 S. 13th St., Louisville, KY 40210

Date App. Received: 21 April 1997 **Date Admin. Complete:** 17 June 1997

Date of Draft Permit: 28 May 2000 **Date of Proposed Permit:** 7 February 2001

District Engineer: John C. McCarthy **Permit No.:** 141-97-TV

Plant ID: 0014 **SIC Code:** 3353 **NAICS:** 331315 **AFS:** 00014

Introduction:

This permit will be issued pursuant to: (1) District Regulation 2.16, (2) Title 40 of the Code of Federal Regulations Part 70, and (3) Title V of the Clean Air Act Amendments of 1990. Its purpose is to identify and consolidate existing District and Federal air requirements and to provide methods of determining continued compliance with these requirements.

Jefferson County is classified as an attainment area for sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), particulate matter less than 10 microns (PM_{10}), and lead (Pb); unclassifiable for particulate matter less than 2.5 microns ($PM_{2.5}$); and is a moderate non-attainment area for ozone (O_3).

Application Type/Permit Activity:

[X] Initial Issuance
[ ] Permit Revision
  [ ]Administrative
  [ ]Minor
  [ ]Significant
[ ] Permit Renewal

Compliance Summary:

[X] Compliance certification signed [ ] Compliance schedule included
[ ] Source is out of compliance

I. Source Description

1. **Class I Area Impacts:** This source is not located in or near a Class I area.

2. **Product Description:** Coils of aluminum foil of a desired gauge.

3. **Overall Process Description:** Alcan Aluminum Corporation cold-rolls coils of aluminum foil. Multiple passes through particular mills are often used to achieve the desired gauge. VOC emissions originate from the rolling coolant used to cool and lubricate the rolling mills. A doubler takes two coils of aluminum and places one sheet on top of the other, creating a doubled roll. Matte oil (rolling coolant) is applied between the sheets to create a matte finish during the pass through the finishing mill. Later the doubled sheets are separated into single sheets on machines called separators. Following the rolling operation, the aluminum foil is sent to annealing ovens to relieve the strain hardening induced by the cold working process and to vaporize the residual oil present on the aluminum foil. Scrap aluminum is pneumatically conveyed to the Melting Pot Room. Using induction furnaces, the scrap aluminum is remelted into ingots for recycling.

   The company currently uses Norpar 13, a high-purity normal paraffinic solvent. This product contains approximately 99 mass % linear paraffins, primarily C_{13}-C_{14}. The Aluminum Association has had research conducted on the reactivity of the normal paraffins to see if these materials could eventually be taken off the VOC list. This project is still in progress.

4. **Site Determination:** There are no other facilities that are contiguous or adjacent and under common control.

5. **Emission Unit Summary:**

   a. U-1: 6 Aluminum Rolling Mills*

   b. U-2: 14 Annealing Ovens

   c. U-3: 1 Doubler

   d. U-4: 4 Aluminum Scrap Melting Pots

   e. U-5: 3 Non-halogenated Cold Solvent Metal Cleaners

   f. U-6: Four 12,000 Gallon Storage Tanks for Rolling Coolant & Fuel Oil

   *When determining the VOC emissions from the rolling mills for compliance purposes, it is necessary to include the emissions from the rolling coolant filters and to include the emissions from operations after the rolling mills, such as the separators and the process scrap conveying system which are described in the table below:

<table>
<tr><th colspan="2">Processes associated with the Rolling Mills which have minimal emissions</th></tr>
<tr><td colspan="2">4 Plate Filters and 1 Bag Filter, using diatomaceous earth, for cleaning the rolling coolant.</td></tr>
<tr><td>4 Separators, for transferring doubled sheets of aluminum foil from one coil to two separate coils, for spooling single sheet product for shipment, and for spooling scrap aluminum.</td><td rowspan="2">Note #1: No rolling coolant is added at any of these processes. Any VOC emissions are due to residual oil carryover from earlier processes.

Note #2: The 2 scrap conveying cyclones are process equipment. The potential PM emissions from the process are less than 1 ton per year and are less than the allowable PM emissions specified by Regulation 6.09.</td></tr>
<tr><td>1 Process Scrap Conveying System, consisting of 2 cyclones and ductwork for conveying scrap trim from the 4 separators, the doubler, the Pot Room floor, and the 14 annealing ovens to the Pot Room.</td></tr>
</table>

6. **Fugitive Sources:** Some of the rolling coolant is emitted as fugitive emissions at the rolling mills and at other processes that follow the rolling mills such as the separators, the annealing ovens, and the scrap melting pots. There is also fugitive VOC emissions from the doubler and the cold solvent degreasers. There is some fugitive PM emissions from the aluminum scrap melting pots.

7. **Title V Major Source Status by Pollutant:**

Pollutant	Actual Emissions (tpy) 1998 Data	Major Source Status (based on PTE)
CO	1.69	No
NO_X	2.01	No
SO_2	0.01	No
PM	1.82	No
VOCs	307.9	Yes
Total HAPs (VOC and Non-VOC)	<1.00	No

8. **Applicable Requirements:**

[ ] PSD [X] NSPS [X] SIP [ ] NSR [ ] NESHAPS
[X] District-Origin [ ] MACT [ ] Other

9. Referenced Federal Regulations in Permit:

40 CFR 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984)

II. Regulatory Analysis

1. Emission and Operating Caps: There is a plant-wide allowable VOC emission limit of 616.85 tons per year. In 1992, a construction permit was issued for Rolling Mill #13 allowing the company to make physical changes to the mill that would increase its speed. As a result of modifying Mill #13, there was a potential VOC emissions increase of 209.2 tons per year (comparing the allowable VOC emissions of 278.0 tons per year from a modified Mill #13 to the estimated actual emissions of 68.8 tons per year from Mill #13 prior to the modification). This increase of 209.2 tons per year included the other increases which could occur at the plant due to the elimination of a bottleneck, since the plant-wide VOC emissions were allowed to increase by a total of 209.2 tons per year from 591.35 tons per year (prior to the modification) to 800.55 tons per year (after the modification). The 591.35 tons per year figure was determined by the company when deciding how many of the emission reductions at the plant would be requested to be banked and how many would go unclaimed as a result of the switch in rolling oil from kerosene to a linear paraffin (Norpar 13) and the corresponding decrease in the plant-wide allowable emission rate. In addition to the increase in VOC emissions from modifying Mill #13, there was an estimated maximum increase of 9.3 tons per year as a result of installing Annealing Ovens #19, #20, #21, and #22, one (1) doubler, and various storage tanks during the contemporaneous period. This resulted in a total increase during the contemporaneous period of 218.5 tons per year. A total of 190 tons per year of VOC emission reduction credits were withdrawn from the Jefferson County Emissions Bank. Combining the VOC emission increases and decreases resulted in an overall emission increase of 28.5 tons per year, which was less than the significant amount specified in Regulation 2.04, Construction or Modification of Major Sources In or Impacting Upon Non-Attainment Areas (Emission Offset Requirements).

On 16 April 1997, the District received an application from the company to deposit additional emission reduction credits into the Bank. The company agreed to limit the VOC emissions from Rolling Mill #13 to 126.9 tons per year rather than 278.0 tons per year since the speed of the mill was not increased as much as originally planned. This resulted in a VOC emission reduction of 151.1 tons per year. The company also took credit for shutting down Rolling Mill #3. This resulted in a VOC emission reduction of 32.6 tons per year. These reductions resulted in the plant-wide allowable VOC emission limit being lowered by 183.7 tons per year (from 800.55 tons per year to 616.85 tons per year) when the banking permit was issued.

On 20 October 1999, the District received a BACT analysis for the Doubler. As a result of this analysis, the company is allowed to emit 7.3 tons per year of VOC emissions in the doubler area. This allowable emission rate is 3.0 tons larger than the value that was used to

evaluate the estimated emission increases during the contemporaneous period when Mill #13 was modified. This will be acceptable, however, since a 11.5 ton per year safety factor was used in the original review. The company originally had an estimated net emissions increase of 28.5 tons per year compared to the significant value of 40 tons per year specified in Regulation 2.04, Construction or Modification of Major Sources In or Impacting Upon Non-Attainment Areas (Emission Offset Requirements). It was decided that only the VOC emissions in the Doubler area need to be considered when evaluating the emission increases caused by the Doubler since the company must apply the rolling coolant between the two doubled sheets at the rolling mills if it is not applied at the Doubler.

In 1989 and 1991, the company installed Annealing Ovens #19, #20, #21, and #22. The combined VOC emissions from these four ovens is limited to five (5) tons per year, as specified in section 2.1 of Regulation 7.25.

The doubler was permitted in early 1987 and was subject to Regulation 7.24, Standards of Performance for New General Surface Coating Operations. At that time, Regulation 7.24 specified that the company could emit 15 percent by weight of the VOC input into the affected facility. Regulation 7.24 was repealed on 17 February 1988 and was superseded by Regulation 7.25. In late 1998, the company installed a flow meter to accurately monitor the amount of rolling coolant which is used in this process. It was discovered that a greater quantity of rolling coolant is used on the doubler (about 25 gallons per day) than originally approximated (5 gallons per day). The company had been using the VOC standard specified in section 3.2 of Regulation 7.25 to show compliance. After discovering the larger rolling coolant usage, the company did a material balance review of the Doubler process to estimate the VOC emissions. It was estimated that more than 5 tons per year of VOC could be emitted from the stack. There are also fugitive emissions at the Doubler when the rolling coolant is being applied and there are fugitive emissions from the rolling coolant added to the sheet, after it is applied. The company decided to perform a Best Available Control Technology (BACT) analysis and demonstrate compliance by utilizing BACT on the Doubler, as specified in section 3.1 of Regulation 7.25. On 20 October 1999, the District received the BACT analysis and determined that it would not be cost effective to replace the current exhaust system and oil mist collector. A large quantity of oil is collected in the current exhaust system due to settling which is caused by a low velocity in a portion of the stack. The company is required to keep the VOC emissions from the Doubler at or below 7.3 tons per year. (This emissions number is based on the emissions from the Doubler stack and from the fugitive emissions at the Doubler when the rolling coolant is being applied. The rolling coolant which is added to the sheet is not included in the emissions number. These emissions are included with the rolling mill and annealing oven emissions.)

The degreasers are subject to the equipment standards specified in District Regulation 7.18, Standards of Performance for New Solvent Metal Cleaning Equipment, rather than VOC emission limits. Mineral spirits or rolling oil are used in the degreasers.

The storage tanks are subject to Regulation 7.12, Standard of Performance for New Storage Vessels for Volatile Organic Compounds, and 40 CFR Part 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, and do not have an allowable VOC emission limit or standard.

For information on the requirements for the Toxic Air Pollutants, see the Title V Operating Permit. The potential uncontrolled Toxic Air Pollutant emissions, which occur due to impurities in the rolling coolant, are estimated to be 1.0 ton per year or less from the combined operations at the plant and do not exceed the Adjusted Significant Levels specified in Regulation 5.11.

See the Title V Operating Permit for more information on the emission and operating limits for the specific equipment.

2. **Compliance Status:** The source signed and submitted a Title V compliance certification in its permit application.

3. **Operational Flexibility:** The source did not request to operate under alternative operating scenarios in its Title V Permit Application.

4. **Testing Requirements:** None at this time.

5. **Periodic Monitoring, Record Keeping and Reporting Requirements:** The source is required to monitor, maintain records of, and report on various operating parameters to demonstrate ongoing compliance with all applicable requirements. Compliance reporting is required semi-annually, except where underlying applicable regulations or permit conditions require more frequent reporting. The following periodic monitoring is sufficient to reasonably assure ongoing compliance. The compliance monitoring, record keeping, and reporting requirements specified in the Title V Operating Permit for Emission Unit Nos. U-1, U-2, U-3, U-4, and U-5 meet the intent of complying with Regulation 1.18, Rule Effectiveness.

VOCs

a. **Emission Units U-1, U-2, U-3, & U-4** - The company is required to perform record keeping to demonstrate compliance with District Regulation 1.05, Compliance with Emission Standards and Maintenance Requirements, Section 4, as specified in Emission Unit Nos. U-1, U-2, U-3 and U-4 of the Title V Operating Permit. (These record keeping requirements were developed from the plans submitted by the company on November 15, 1993 and June 13, 1995 and in the Title V Permit Application.) The company is also required to perform record keeping to demonstrate compliance with District Regulation 6.43 - Volatile Organic Compound Emission Reduction Requirements and with the emission limits specified in the Title V Operating Permit. The company is required to submit a compliance monitoring report every six months to demonstrate compliance with the emission limits specified in the Title V Operating Permit for Rolling Mills #13, #4,

#14, #15, #11, and #12, the Doubler, Annealing Ovens #19, #20, #21, and #22, and for the VOC emissions based on the rolling coolant usage for all activities throughout the entire plant. No compliance record keeping is required for Annealing Ovens #9, #10, #11, #12, #13, #14, #15, #16, #17, and #18 and the four Aluminum Scrap Melting Pots since the potential emissions for these facilities can not exceed the allowable VOC emission limits. The company is merely required to keep the calculations in their records showing that the emission limits can not be exceeded. The VOC emissions from the annealing ovens and melting pots will be included each year in the Emission Inventory System update. The plant-wide VOC emissions are calculated by doing a material balance of the rolling coolant and are not affected by the annealing oven and melting pot emissions calculations. The company is also required to implement a preventive maintenance program and submit reports on this program.

b. **Emission Unit U-5** - The company is required to perform record keeping to demonstrate compliance with Regulation 1.05, Compliance with Emission Standards and Maintenance Requirements, Section 4, as specified in Emission Unit No. U-5 of the Title V Operating Permit. (These record keeping requirements were modified from a plan submitted by the company on 15 November 1993.) The company is also required to perform record keeping to comply with the requirements of Regulation 7.18, Standards of Performance for New Solvent Metal Cleaning Equipment. The company is required to submit a compliance monitoring report every six months to declare that the equipment standards and records are being maintained.

c. **Emission Unit U-6** - The company is required to keep records as specified in 40 CFR Part 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 60.116b, paragraphs (a) and (b).

Particulate matter

a. **Emission Units U-1, U-2, & U-3** - Monitoring of PM emissions is not required for the Process Scrap Conveying System since the potential uncontrolled PM emissions from the system are estimated to be less than 1.0 ton per year, corresponding to an average hourly rate of less than 0.23 pounds, which is below the allowable emission rate of Regulation 6.09, Standards of Performance for Existing Process Operations. Continued compliance will be tracked using annual emissions inventory reporting.

b. **Emission Unit U-4** - The company is required to keep the calculations in their records showing that the potential emissions from the 4 melting pots are less than the hourly allowable PM emission limit. No additional compliance record keeping is required for the melting pots.

Opacity

a. **Emission Units U-1, U-2, & U-3** - Visible emission surveys are not required for the Process Scrap Conveying System since the potential PM uncontrolled emissions from the system are estimated to be less than 1.0 ton per year, since the material being conveyed is long strips of aluminum foil trim, and since the District has not seen visible emissions from this system during numerous reinspections of the plant.

b. **Emission Unit U-4** - The company is required to conduct visible emission surveys and tests and submit reports for the 4 melting pots, as specified in Emission Unit No. 4.

TAPs

a. **Emission Units U-1, U-2, U-3, & U-4** - The company is required to keep records of the compliance demonstration showing, that for the facilities covered by Regulation 5.11, Standards of Performance for Existing Sources Emitting Toxic Air Pollutants, that the emissions of any pollutant referenced by Regulation 5.11 will be less than the adjusted significant level (ASL), based on potential to emit (PTE). If there is an increase in TAP emission levels (such as, from changing to a new rolling coolant), the owner or operator shall also keep records, for each individual project, showing that the net increase (the result of algebraic summation of increases and decreases) in emission rate of any pollutant referenced by Regulation 5.12, Standards of Performance for New or Modified Sources Emitting Toxic Air Pollutants, will not exceed the ASL regardless of whether the pollutant of concern was or was not previously emitted. The decreases will be based on representative actual emissions and the increases will be based on PTE.

   The company is required to keep records of the compliance demonstration showing, that for the facilities covered by Regulation 5.12, that the emissions of any pollutant referenced by Regulation 5.12 will be less than the adjusted significant level (ASL), based on potential to emit (PTE).

b. **Emission Unit U-5** - The company is required to keep records of the compliance demonstration showing that, for the 3 parts washers, the emissions of any pollutant referenced by Regulation 5.12 will be less than the adjusted significant level (ASL), based on potential to emit (PTE).

6. Off-Permit Documents:

Document	Date
Rule Effectiveness Survey	18 January 1995
Rule Effectiveness Improvement Measures	27 April 1995

The District considers an "off-permit document" as a document on which a source's compliance with given regulation(s) is contingent or which contains regulatory requirement(s), but is only referenced in a source's Title V Operating Permit. The designation "off-permit document" shall be made at the District's discretion, and may include, but not be limited to, documents such as Regulation 1.05 VOC compliance plans, PMPs,

MOCS; or other documents which are too voluminous to be included in a source's Title V Operating Permit, as determined by the District.

III. Other Requirements

1. **Temporary Facilities:** The source did not request to operate any temporary facilities.

2. **Short Term Activities:** The source did not report any short term activities.

3. **Compliance Schedule/Progress Reports:** The source has certified compliance with all applicable requirements; therefore, no compliance schedule or progress reports are necessary.

4. **Emissions Trading:** The company has Emission Reduction Credits deposited in the Jefferson County Emissions Bank. See Comment #1 on Emission Unit Nos. U-1, U-2, & U-3 for further details.

5. **Acid Rain Requirements:** The source is not subject to the Acid Rain Program.

6. **Stratospheric Ozone Protection Requirements:** Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any source that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. The source did not identify any listed chemicals in its Title V permit application.

7. **Prevention of Accidental Releases 112(r):** The source does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR 68 Subpart F and Regulation 5.15, Chemical Accident Prevention Provisions, in a quantity in excess of the corresponding specified threshold amount.

8. **Insignificant Activities:** The following activities, as referenced in the source's Title V Permit Application, have been determined by the District to be insignificant.

INSIGNIFICANT ACTIVITIES		
Description	**Quantity**	**Basis**
Storage Tanks, 5000 gallons each, for used linear paraffin	3	Regulation 2.02, section 2.3.9.2
Storage Tanks, 3000 gallons each, for waste oil, hydraulic oil, & #2 fuel oil	3	Regulation 2.02, section 2.3.9.2
Storage Tank, 2000 gallons, for water-based roll grinding coolant	1	Regulation 2.02, section 2.3.9.2
Storage Tanks, 400 gallons each, for used linear paraffin	2	Regulation 2.02, section 2.3.9.2

INSIGNIFICANT ACTIVITIES		
Description	**Quantity**	**Basis**
Combustion Sources < 10 MMBTU/hr - Natural gas: 1 Boiler, 4 Hot Water Heaters, 2 Space Heaters & 1 Make-up Air Heater	8	Regulation 2.02, section 2.1.1
Combustion Sources < 10 MMBTU/hr - Natural gas & #2 Fuel Oil: Kewanee boilers, 5.05 MMBTU/hr each	2	Regulation 2.02, section 2.1.1
Research & Development Activities	1	Regulation 2.02 section 2.3.27
Internal Combustion Engines	Various	Regulation 2.02 section 2.2
Brazing, Soldering, or Welding Operation	1	Regulation 2.02 section 2.3.4
Emergency Relief Vents or Ventilating Systems (Not otherwise regulated)	Various	Regulation 2.02 section 2.3.10
Lab Ventilating & Exhausting Systems Non Radioactive Materials	Various	Regulation 2.02 section 2.3.11
Vacuum Distillation Unit, for reclaiming used rolling coolant	1	Negligible emissions
Mill Roll Grinders, using water-based lubricants	Various	Negligible emissions
Baler, for oily scrap	1	See (a) below.
Reclaimed Filter, to filter dirt from used rolling coolant prior to distillation	1	Negligible emissions
Cooling Tower	1	See (b) below.
Usage of Lubricants in Spray Cans	1	Negligible emissions

a. No rolling coolant is added at this process. Any VOC emissions would be due to residual rolling coolant carryover from earlier processes.

b. Chromium-based water treatment chemicals are not used; therefore 40 CFR Part 63, Subpart Q, National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers does not apply.

c. Insignificant Activities are only those activities or processes falling into the general categories defined in Regulation 2.02, Section 2, and not associated with a specific operation or process for which there is a specific regulation. Equipment associated with a specific operation or process (Emission Unit) shall be listed with the specific process even though there may be no applicable requirements. Information contained in the permit and permit summary shall clearly indicate that those items identified with negligible emissions have no applicable requirements.

d. Activities identified in Regulation 2.02, Section 2, may not require a permit and may be insignificant with regard to application disclosure requirements but may still have generally applicable requirements that continue to apply to the source and must be included in the Title V permit.

I. No facility, having been designated as an insignificant activity, shall be exempt from any generally applicable requirements which shall include a 20% opacity limit for facilities not otherwise regulated.

ii. No periodic monitoring shall be required for facilities designated as insignificant activities.